EFFECTS OF RESPONSE AND TRIAL REPETITION ON SIGHT-WORD TRAINING FOR STUDENTS WITH LEARNING DISABILITIES

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Alternating treatments designs were used to compare the effects of trial repetition (one response within five trials per word) versus response repetition (five response repetitions within one trial per word) on sight-word acquisition for 3 elementary students diagnosed with specific learning disabilities in reading. Although both interventions occasioned the same number of accurate responses per word during training, the trial-repetition condition, which involved complete antecedent-response-feedback sequences, resulted in more words mastered for all 3 students.

DESCRIPTORS: learning disabled, response distribution, academic behavior

Berliner (1984) reviewed research which showed that the amount of academic learning time (time spent engaged in high rates of correct responding) positively correlates with learning. Greenwood, Delquadri, and Hall (1984) found that increases in the number of opportunities to respond (complete three-term contingencies involving an antecedent, response, and consequences) resulted in increases in learning levels. Academic learning time differs from opportunities to respond in that the former focuses on independent practice to increase accurate responding, whereas the latter includes antecedents and consequences. This research suggests that one way to remedy and prevent learning deficits is to provide students with more learning opportunities. Increasing the rate of learning trials has been shown to be functionally related to increases in correct math responding, suggesting that the learning trial is a strong predictor of effective instruction (Albers & Greer, 1991). Alternatively, procedures like positive practice overcorrection (Foxx & Jones, 1978) have shown that increasing the number of accurate responses, without increasing the number of learning trials, can result in increases in learning. Regardless of the variables targeted for manipulation, one goal of education has been to maximize learning by increasing response opportunities. In this study we used an alternating treatments design to evaluate both trial repetition and response repetition.

METHOD: *Participants, setting, and materials.* Lou (age 12), Carl (age 12), and Hal (age 9), all diagnosed with a specific learning disability in reading, participated in this study. All assessment probes and training sessions were conducted in each student's classroom. Grade-level reading series and the *Brigance Inventory of Basic Skills* (Brigance, 1977) were used to obtain a pool of potential unknown words for each student.

Dependent measure and experimental design. The dependent measure was the cumulative number of sight words mastered during daily noninstructional assessments. A mastered sight word was defined as any word that was spoken correctly on three consecutive noninstructional assessments. During baseline assessment, a pool of unknown words was developed. To create this pool, a word was added when the student (a) pronounced the word incorrectly or (b) did not respond to the word within 3 s for three consecutive assessment sessions. This pool of unknown words was assessed across all phases of the study in baseline assessment, noninstructional assessment, and maintenance probes. An alternating treatments design was used to compare the effects of the response-repetition and the trial-repetition conditions.

Procedure. Baseline assessments were conducted on all words in the pool of unknown words. The investigator placed the first word card on the table. After 3 s, the investigator picked up the card, scored the response (correct or incorrect), and placed the next card on the table. If a student responded correctly to one of the words, that word was dropped from the pool. Assessment continued until all cards had been placed in front of the student. After a pool of 80 unknown words was identified for Lou and Carl and a pool of 30 words was identified for Hal, the baseline assessment ended.

Following baseline, five words were randomly selected from the pool of unknown words as the initial training words for each of the two interventions. Once a word from either training list reached mastery, the word was cycled out of the training list and a new word from the unknown pool was cycled into the training list.

Each day, one session consisted of noninstructional assessment that was identical to baseline, followed by exposure to both interventions. The daily noninstructional assessment was conducted on all words (i.e., previously mastered words, words currently being trained, and words currently in the unknown pool). Words previously mastered but said incorrectly during assessments were not replaced in training. The order of intervention was counterbalanced across sessions. Both conditions permitted five response opportunities per training word per training session.

The trial-repetition condition consisted of one response opportunity for each of five practice trials per word. The investigator placed one word card on the table and gave the direction, "Look at the word, and say the word." The investigator waited 3 s. If the response was correct, the investigator responded, "Yes, the word is _____." If the response was incorrect or if there was no response from the student within 3 s, the investigator said, "(No), the word is _____," and the student repeated the word. This procedure was repeated until five interspersed practice trials (antecedent-response-feedback) were given with each word in this training list per session.

The response-repetition condition consisted of five response repetitions within one practice trial per word. The investigator placed one word card on the table and gave the direction, "Look at the word, and say the word." The investigator waited 3 s. If the response was correct, the investigator responded, "Yes, the word is _____, please repeat the word four more times." If the response was incorrect or if there was no response from the student within 3 s, the investigator said, "(No), the word is _____," the student

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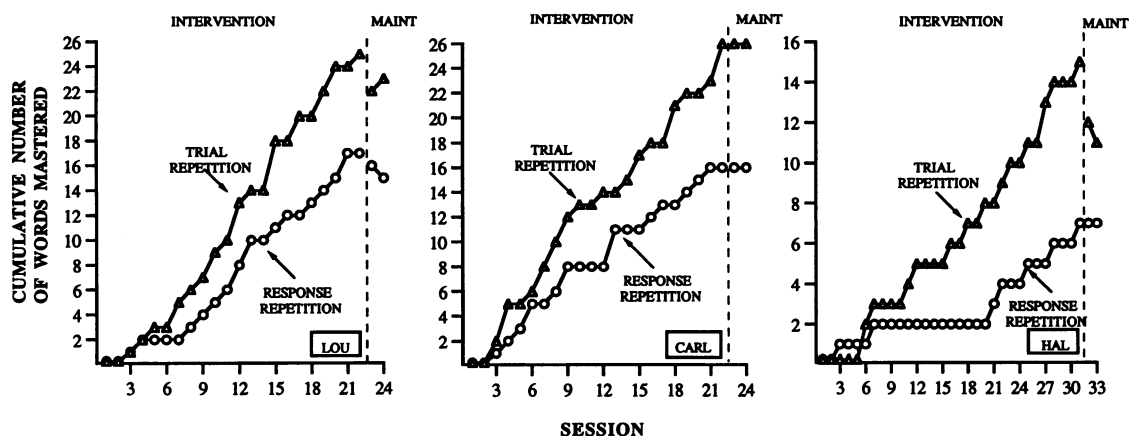
repeated the word, and the instructor said, "Please repeat the word four more times." This procedure was conducted once, permitting only one antecedent cue and one feedback statement for each of the five words in the training list per session.

Maintenance probes were administered at 4- and 6-week intervals after the last word was removed from the unknown pool, and were identical to the baseline assessment.

Interobserver agreement and procedural integrity. Agreement data for mastered words were collected for 29% of all sessions, distributed across students, phases, and conditions, with mean agreement of 96% (range, 60% to 100%). Agreement was calculated by dividing the number of agreements by the sum of the agreements and disagreements and multiplying by 100%. Procedural integrity data were collected on prompts, error correction, and latency during seven sessions, with agreement across all instructional variables at 100%.

RESULTS AND DISCUSSION: Although the number of accurate academic responses were equal across both intervention conditions, the figure shows that for all 3 students the trial-repetition condition resulted in consistently higher learning rates than the response-repetition condition did. These results show that increasing the number of complete three-term contingency trials may result in greater increases in learning than merely increasing the number of accurate responses.

Response repetition outside the context of the learning trial (i.e., of the three-term contingency) was not as effective as repetition that included antecedent and consequent stimuli in relation to the accurate response. The response-repetition condition permitted only one antecedent instructor cue and one consequent feedback per word, whereas trial repetition provided cues and feedback each time a word was presented. In addition, response repetition resulted in five repeated responses (i.e., massed responses) for each word per session, whereas the trials within the trial-repetition condition were interspersed throughout the session, resulting in distributed responses for each word. An alternative explanation is that the four response repetitions required following a correct response may have functioned as a punisher (i.e., overcorrection) for correct responding, resulting in lower levels of mastery in the response-repetition condition. Similarly, without feedback following the four response repetitions, we may have set up an extinction schedule in the response-repetition condition, again resulting in lower levels of word mastery.

These findings are important as educators continually attempt to identify and increase correlates of learning. Our findings suggest that educators should focus on increasing the number of learning trials rather than merely increasing the number of accurate responses.

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